# Scenario Characteristics

## General Overview of Metrics Categories and Statistics

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# Center Airspace

Provides global airspace characteristics
   number of airports
   sectors
   special activity airspaces, etc.

# Aircraft and Airspace Encounter Distributions

Provides measures of aircraft to aircraft (airspace) encounter density
   minimum horizontal separation
   flight level
   encounter angle and phase of flight

# Air Traffic Distributions

Provides air traffic measures
   horizontal separation by flight level
   active flights
   flight type and sector penetration
   ground speed
   center to APD ratio
   interim altitude and amendment messages

# Aircraft Distributions

Provides aircraft measures
aircraft type
model type
navigational equipage
air carrier

# Flight Plan Adherence

Provides measures of aircraft adherence to known clearance
lateral adherence
vertical adherence

# Interfacility Traffic Flow

Provides a measure of interfacility message loading relative to ZID
Input
Output

# Slide Format

## Characteristic
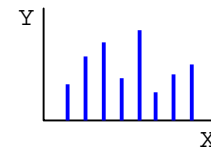
Intent of select characteristic

## Metric

Specific statistic or measure of the characteristic category to quantify a certain aspect of the generated data

## Documentation

Icon representing the table or chart provided in the documentation

**Scenario Characteristics**

— **Center Airspace Characteristics**

— **Aircraft Encounter Distributions**

— **Airspace Encounter Distributions**

— **Air Traffic Distributions**

— **Aircraft Distributions**

— **Flight Plan Adherence**

— **Interfacility Traffic Flow**

# Characteristic

Provides the global airspace characteristics

# Metric

Count of airports, sectors, SAA, APDIA, SID, STAR, PAR, PDR, PDAR

# Documentation

Count

| | Metric | Defn | |
|---|---|---|---|
Airports
Sectors
SAA
APDIA
SID
STAR
PAR
PDR
PDAR

# Characteristic

Provides a measure of aircraft to airspace encounter density

# Metric

Count of current plan and trial plan aircraft encounters by select horizontal separation distances

# Documentation

Current Plan w/o adherence

Current Plan with 13 minute adherence

| H Sep | | |
|---|---|---|
| 0-5 | | |
| 5-10 | | |
| 10-15 | | |
| 15-23 | Total | Total |
| 23-30 | | |

Trial Plan w/o adherence

Trial Plan with 20 minute adherence

| H Sep | | |
|---|---|---|
| 0-5 | | |
| 5-10 | | |
| 10-15 | | |
| 15-24 | Total | Total |
| 24-30 | | |

**Scenario
Characteristics**

— **Center Airspace
Characteristics**

— **Aircraft Encounter
Distributions**

— **Minimum Horizontal
Separation**

— **Altitude for Standard FL**

— **Vertical Phase of Flight
and Encounter Angle**

— **Airspace Encounter
Distributions**

— **Air Traffic
Distributions**

— **Aircraft
Distributions**

— **Flight Plan
Adherence**
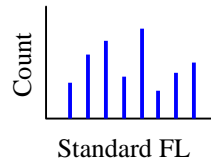
— **Interfacility
Traffic Flow**

# Characteristic

Provides a measure of aircraft to airspace encounter density

# Metric

Count of aircraft to aircraft encounters by standard flight levels

# Documentation

Aircraft encounters by flight level
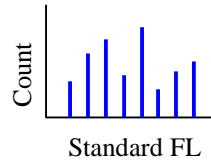
**Scenario Characteristics**

— **Center Airspace Characteristics**

— **Aircraft Encounter Distributions**

   — **Minimum Horizontal Separation**

   — **Altitude for Standard FL**

   — **Vertical Phase of Flight and Encounter Angle**

— **Airspace Encounter Distributions**

— **Air Traffic Distributions**

— **Aircraft Distributions**

— **Flight Plan Adherence**

— **Interfacility Traffic Flow**

# Characteristic

Provides a measure of aircraft to airspace encounter density

# Metric

Count of aircraft encounters partitioned by phase of flight and encounter angle

# Documentation

0-45, 45-90, 90-135, 135-180

| Phase | | | | | Total |
|---|---|---|---|---|---|
Cruise-Cruise
Descend-Descend
Climb-Climb
Cruise-Climb
Cruise-Descend
Climb-Descend
Unknown

| Total | | | | | |

SS-8

# Characteristic

Provides a measure of aircraft to airspace encounter density

# Metric

Count of current plan and trial plan airspace encounters by select horizontal separation distances

# Documentation

Current Plan w/o adherence

| cons | H Sep | | |
|------|-------|--|--|
| 0 | | | |
| 0-7 | | | |
| 7-9 | | | |
| 9-11 | | | |
| 11-16 | | Total | Total |
| 16-30 | | | |

Current Plan with 13 minute adherence

Trial Plan w/o adherence

| cons | H Sep | | |
|------|-------|--|--|
| 0 | | | |
| 0-8 | | | |
| 8-11 | | | |
| 11-13 | | | |
| 13-19 | | Total | Total |
| 19-30 | | | |

Trial Plan with 20 minute adherence

## Characteristic

Provides a measure of aircraft to airspace encounter density

## Metric

Airspace to airspace encounters by standard flight levels

## Documentation

Airspace encounters by flight level



Count

Standard FL

# Characteristic

Provides a measure of aircraft to airspace encounter density

# Metric

Count of airspace encounters by angle and vertical phase of flight for side, top and bottom encounters

# Documentation

0-30, 30-60, 60-90

| Phase | | | Total |
|-------|--|--|-------|
| Climb | | | |
| Cruise | | | |
| Descend | | | |
| Total | | | |

# Characteristic

Provides air traffic measures

# Metric

Average horizontal separation by altitude for all hours and each scenario hour

# Documentation

Average horizontal separation by fight level



Horz Sep

Standard FL

# Characteristic

Provides air traffic measures

# Metric

Statistics on active flights per minute increment

# Documentation

Count Average, Std Dev, Max and Min

Active flights per minute increment

Count

Minutes

# Characteristic

Provides air traffic measures

# Metric

Average number of sectors penetrated, average center and sector time, and percent breakdown by flight type

# Documentation

Arrivals, Departures, Internals, Overflights, All flights

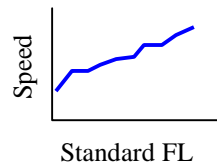| Metric | | | | | |
|--------|--|--|--|--|--|
| Sectors Penetrated | | | | | |
| Center Time | | | | | |
| Sector Time | | | | | |
| Percent | | | | | |

# Characteristic

Provides air traffic measures

# Metric

Average ground speed by flight level for all hours and each scenario hour

# Documentation

Aircraft ground speed by flight level



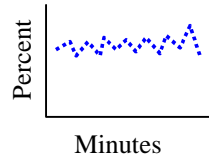Speed vs Standard FL

SS-15

# Characteristic

Provides air traffic measures

# Metric

Percentage of track points in center to APD zone per minute increment

# Documentation

Center to APD zone ratio per minute increment



Percent

Minutes

SS-16

# Characteristic

Provides air traffic measures

# Metric

Statistics on interim altitude and amendment messages per minute increment

# Documentation

Count, Average, Std Dev, Max and Min per minute increment

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |

# Characteristic

Provides air traffic measures

# Metric

Total and percent breakdown of flight tracks partitioned by vertical and horizontal phase

# Documentation

STR, TURN

| Phase | | | Total |
|---|---|---|---|
| ASC | | | |
| DES | | | |
| LEV | | | |

# Characteristic

Provides aircraft measures

# Metric

Count by aircraft type

# Documentation

Count, Percentage

| Type | | |
|------|--|--|
| J    |  |  |
| P    |  |  |
| T    |  |  |
|      | Total | |
| Unk  |  |  |

# Characteristic

Provides aircraft measures

# Metric

Count by aircraft model

# Documentation
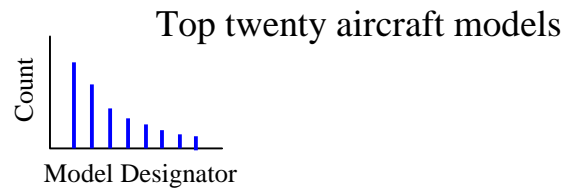
Top twenty aircraft models

# Characteristic

Provides aircraft measures

# Metric

Count by navigational equipage type

# Documentation

Count, Percentage

| | Code | |
|---|---|---|
| A | | |
| I | | |
| G | | |
| E | | |
| F | | |
| R | | |
| U | | |
| P | | |
| W | Total | |

# Characteristic

Provides aircraft measures

# Metric

Count by air carrier designation

# Documentation

Count, Percentage

| Catg | | |
|---|---|---|
| Commercial | | |
| Gen Aviation | | |
| Other | | |
| | Total | |
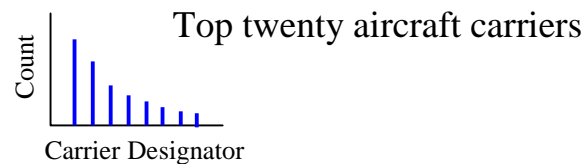
Top twenty aircraft carriers

Count

Carrier Designator

# Characteristic

Provides a measure of aircraft adherence to known clearance

# Metric

Statistics on lateral flight plan adherence by select flight levels

# Documentation

Count, Max Out, Min Out, Avg Out, Std Dev

| | Upp FL | | | | |
|---|---|---|---|---|---|
| 10000 | | | | | |
| 18000 | | | | | |
| 33000 | | | | | |
| 45000 | Total | | | | |

## Characteristic

Provides a measure of aircraft adherence to known clearance

## Metric

Statistics on vertical flight plan adherence by select flight levels

## Documentation

Count, Max Out, Min Out, Avg Out, Std Dev

| Upp FL | | | | |
|---|---|---|---|---|
| 29000 | | | | |
| 45000 | Total | | | |

Scenario
Characteristics

- Center Airspace Characteristics
- Aircraft Encounter Distributions
- Airspace Encounter Distributions
- Air Traffic Distributions
- Aircraft Distributions
- Flight Plan Adherence
- **Interfacility Traffic Flow**
  - **Crossing ZME Boundary**

# Characteristic

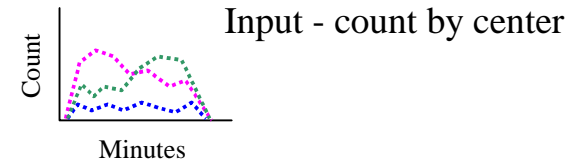Provides a measure of interfacility message loading relative to ZID

# Metric

Statistics on flights into and out of ZME airspace
per minute increment

# Documentation

Avg, Std Dev, Max Cnt, Min Cnt

From ZID
ZME
Othr

| Input | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |

Input - count by center

Count / Minutes

Avg, Std Dev, Max Cnt, Min Cnt

Into ZID
ZME
Othr

| Output | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |

Output - count by center

Count / Minutes